

Amendments to Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-16 (Canceled)

17. (Previously Presented) A high strength cast aluminum alloy product formed from a 2000, 4000, 6000, 7000 or 8000 series aluminum alloy, wherein the aluminum alloy consists essentially of a substantially uniform and generally round grain structure substantially free of microshrinkage defects, wherein the aluminum alloy product has an elongation of at least about 4% and is produced by a process comprising the steps of:

providing a molten body of a melted aluminum alloy;
centrifugally casting the molten body to form a cast body; and
hot isostatically processing the cast body to form a hipped body.

18. (Previously Presented) An article formed from a 2000, 4000, 6000, 7000 or 8000 series aluminum alloy, wherein the aluminum alloy consists essentially of a substantially uniform and generally round grain structure and is substantially free of microshrinkage defects, wherein the aluminum alloy has an elongation of at least about 4%.

19. (Original) The article of Claim 18, wherein the aluminum alloy has an average grain size of about 3000 to 4000 μ inch.

20. (Original) The article of Claim 18, wherein the aluminum alloy is a wrought aluminum alloy having sufficient fluidity as a melt for centrifugal casting.

~~21. (Canceled)~~

22. (Original) The article of Claim 20, wherein the wrought alloy is a 2024, 2090, 2095, 2195 or 2219 aluminum alloy.

23. (Original) The article of Claim 20, wherein the wrought alloy is a 6061 aluminum alloy.

24. (Original) The article of Claim 23, wherein the wrought alloy is a 6061-T6 aluminum alloy.

25. (Original) The article of Claim 20, wherein the wrought alloy is a 7075 aluminum alloy.

26. (Original) The article of Claim 20, wherein the wrought alloy is a 8090 aluminum alloy.

27. (Original) The article of Claim 18, wherein the aluminum alloy is an Al-Mg-Si type aluminum alloy.

28. (Previously Presented) The article of Claim 27, wherein the aluminum alloy comprises 0.4-0.8% Si, 0.15-0.4% Cu, 0.04-0.35% Cr, 0.8-1.2% Mg, 0.05-0.7% Fe and at least 94.85 wt% Al.

29. (Original) The article of Claim 18, wherein the aluminum alloy is an Al-Cu type aluminum alloy.

30. (Original) The article of Claim 18, wherein the aluminum alloy is an Al-Zn type aluminum alloy.

31. (Canceled)

32. (Original) The article of Claim 18, wherein the aluminum alloy article has a tensile strength, a yield strength and an elongation meeting ASTM wrought specifications.

33. (Previously Presented) A cast aluminum alloy article formed from a 6000 series aluminum alloy and having an elongation of at least about 4% and a tensile strength of at least about 38 KSI, wherein the aluminum alloy consists essentially of a substantially uniform and generally round grain structure.

34. (Original) The article of Claim 33 having a 0.2 % offset yield strength of at least about 32 KSI.

35. (Original) The article of Claim 34 having a tensile strength of at least about 50 KSI.

36. (Original) The article of Claim 34 having an elongation of at least 8%.

37. (Original) The article of Claim 34 having a 0.2 % offset yield strength of at least about 45 KSI.

38. (Currently Amended) The article of Claim 33 having an elongation of at least 6%, a tensile strength of at least about 45 KSI and a 0.2 % offset yield strength of at least about 40 KSI.

39. (Original) The article of Claim 33 having a Brinell Hardness at 500 kg load of at least about 80.

40. (Previously Presented) The product of Claim 17 wherein the aluminum alloy is substantially free of pores having a largest dimension which exceeds 0.0001 inch.

41. (Previously Presented) The product of Claim 40 wherein the aluminum alloy is substantially free of intergranular voids.

42. (Previously Presented) The product of Claim 41 wherein the aluminum alloy has a grain structure that is substantially uniform.

43. (Previously Presented) The article of Claim 18 wherein the aluminum alloy is substantially free of pores having a largest dimension which exceeds 0.0001 inch.

44. (Previously Presented) The article of Claim 43 wherein the aluminum alloy is substantially free of intergranular voids.

45. (Previously Presented) The article of Claim 44 wherein the aluminum alloy has a grain structure that is substantially uniform.

46. (Previously Presented) The article of Claim 33 wherein the aluminum alloy is substantially free of micropores having a largest dimension which exceeds 0.0001 inch.

47. (Previously Presented) The article of Claim 33 wherein the aluminum alloy has an average grain size of about 0.003 to 0.004 inch.

48. (Previously Presented) The article of Claim 33 wherein the aluminum alloy is substantially free of microshrinkage defects.

49. (Previously Presented) The article of Claim 33 wherein the aluminum alloy is substantially free of intergranular voids.

50. (Cancelled)

51. (Currently Amended) The article of Claim ~~50~~ 33 wherein the aluminum alloy has an elongation of at least about 6% ~~about 4%~~.

52. (Previously Presented) The article of Claim 33 wherein the aluminum alloy is a 6061 aluminum alloy which has a tensile strength of at least about 45 KSI, a 0.2 % offset yield strength of at least about 40 KSI, and a Brinell Hardness at 500 kg load of at least about 80.

53. (Previously Presented) A cast aluminum alloy article formed from a 6000 series aluminum alloy and having an elongation of at least about 4%, a 0.2 % offset yield strength of at least about 32 KSI, and a tensile strength of at least about 38 KSI, wherein the aluminum alloy consists essentially of a substantially uniform and generally round grain structure; and is substantially free of micropores having a largest dimension which exceeds 0.0001 inch; and the generally round grain structure has an average grain size of about 0.003 to 0.004 inch.

54. (Previously Presented) A high strength cast aluminum alloy product formed from a 6000 series aluminum alloy, wherein the aluminum alloy product consists essentially of a substantially uniform and a generally round grain structure, substantially free of microshrinkage defects and is produced by a process comprising the steps of:

providing a molten body of the 6000 series aluminum alloy;
centrifugally casting the molten body to form a cast body; and
hot isostatically processing the cast body to form a hipped body;

wherein the aluminum alloy product has an elongation of at least about 4%, a 0.2 % offset yield strength of at least about 32 KSI, and a tensile strength of at least about 38 KSI.

55. (Previously Presented) The product of Claim 54 wherein the aluminum alloy has a Brinell Hardness at 500 kg load of at least about 80.

56. (Previously Presented) The product of Claim 54 wherein the aluminum alloy is a 6061 aluminum alloy which has an elongation of at least about 6% and a tensile strength of at least about 42 KSI.

57. (Currently Amended) The product of Claim 54 wherein the aluminum alloy ~~has a substantially uniform and generally round grain structure; and is~~ substantially free of micropores having a largest dimension which exceeds 0.0001 inch; and the generally round grain structure has an average grain size of about 0.003 to 0.004 inch.

58. (Previously Presented) The product of Claim 54 wherein the aluminum alloy has a 0.2 % offset yield strength of at least about 40 KSI, and a tensile strength of at least about 45 KSI.

59. (Previously Presented) A high strength cast aluminum alloy product formed from a 7000 series aluminum alloy, wherein the aluminum alloy product consists essentially of a substantially uniform and a generally round grain structure, substantially free of microshrinkage defects and is produced by a process comprising the steps of:—

providing a molten body of the 7000 series aluminum alloy;
centrifugally casting the molten body to form a cast body; and
hot isostatically processing the cast body to form a hipped body;

wherein the aluminum alloy product has an elongation of at least about 4%, a 0.2 % offset yield strength of at least about 40 KSI, and a tensile strength of at least about 50 KSI.

60. (Canceled)

61. (Previously Presented) The product of Claim 59 wherein the aluminum alloy has a tensile strength of at least about 75 KSI.

62. (Previously Presented) The product of Claim 59 wherein the aluminum alloy has a 0.2 % offset yield strength of at least about 65 KSI.

63. (Previously Presented) The product of Claim 59 wherein the aluminum alloy is a 7075 aluminum alloy.

64. (Previously Presented) The product of Claim 63 wherein the aluminum alloy is a 7075-T6 aluminum alloy.

65. (Previously Presented) The product of Claim 59 wherein the aluminum alloy is has a Brinell Hardness at 500 kg load of at least about 80.

66. (Previously Presented) The product of Claim 59 wherein the aluminum alloy has an elongation of at least about 4%; a tensile strength of at least about 75 KSI; and a 0.2 % offset yield strength of at least about 65 KSI.

67. (New) A cast aluminum alloy product formed from a 6000 series aluminum alloy, wherein the aluminum alloy consists essentially of a substantially uniform and generally round grain structure and is substantially free of micropores having a largest dimension which exceeds about 0.0001 inch; and

the aluminum alloy has an elongation of at least about 4 %; a 0.2 % offset yield strength of at least about 32 KSI; and a tensile strength of at least about 38 KSI.

68. (New) The product of claim 67 wherein the alloy has a tensile strength of at least about 50 KSI.

69. (New) The product of claim 67 wherein the aluminum alloy has an elongation of at least about 6 %.

70. (New) The product of claim 67 wherein aluminum alloy has a 0.2 % offset yield strength of at least about 45 KSI.

71. (New) The product of claim 67 wherein aluminum alloy has a Brinell Hardness at 500 Kg load of at least about 80.

72. (New) The product of claim 67 wherein aluminum alloy is a 6061 aluminum alloy.

73. (New) A cast aluminum alloy product formed from a 7000 series aluminum alloy, wherein the aluminum alloy consists essentially of a substantially uniform and generally round grain structure and is substantially free of micropores having a largest dimension which exceeds about 0.0001 inch; and

the aluminum alloy has an elongation of at least about 4 %; a 0.2 % offset yield strength of at least about 40 KSI; and a tensile strength of at least about 50 KSI.

74. (New) The product of claim 73 wherein the alloy has a tensile strength of at least about 75 KSI.

75. (New) The product of claim 73 wherein the aluminum alloy has an elongation of at least about 6 %.

76. (New) The product of claim 73 wherein aluminum alloy has a 0.2 % offset yield strength of at least about 65 KSI.

77. (New) The product of claim 73 wherein aluminum alloy has a Brinell Hardness at 500 Kg load of at least about 80.

78. (New) The product of claim 73 wherein aluminum alloy is a 7075 aluminum alloy.

79. (New) The product of claim 73 wherein aluminum alloy is a 7075-T6 aluminum alloy.